ABSTRACTS

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Partial hydatidiform mole diagnosis in a cat - A case report

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OBJECTIVES AND METHODS: Investigating the reasons of stillbirths, including diagnosis of a hydatidiform mole in various species remains an important health issue among veterinarians and breeders. Abnormalities of a stillborn foetus submitted for anatomopathological examination are often ambiguous and difficult to interpret (1). Moreover, the use of highly efficient cytogenetic techniques is limited or simply impossible due to the lack of live, dividing cells (2). Therefore, in the past few years molecular biology techniques aid not only in the identification of the hydatidiform mole but also define its origin (3). In the report a case of a stillborn Norwegian Forest kitten is described. The kitten was characterized in the course of anatomopathological examination by delayed development and lower birth weight. These abnormalities were assigned to abnormal placental development where a partial hydatidiform mole was diagnosed. In an attempt to verify the diagnosis additional genetic tests were performed on DNA samples collected from the foetus's internal organs as well as the placenta and mother’s hair. The genetic profile determining the kittens karyotype was established by simultaneous amplification of the feline sex-determining region of the Y chromosome $Sry$ and amelogenin ($Amel$) gene form located on the X and Y chromosomes. Additionally, highly heterozygous microsatellite sequences located on the X (FCA311) and autosomal chromosomes (FCA506 – F2 chromosome, FCA532 – A2 chromosome and FCA178 – A1 chromosome) were amplified.

RESULTS: The presence of two microsatellite alleles of paternal origin and one allele of maternal origin were observed in all analyzed tissues (kidney, liver, brain, heart and spleen) isolated from the stillborn kitten. The results thus confirm that the haploid egg was fertilized by two sperm yielding a triploid karyotype. Two maternal and paternal autosomal microsatellite alleles were found in the placenta suggesting that its development involves both foetal and maternal components. The molecular analysis determining the kittens sex yielded a positive result concerning the presence of the paternal $Sry$ gene, maternal and paternal products of $Amel$ as well as one maternal and one paternal X chromosome microsatellite allele. This result gives evidence that one X chromosome was inherited from the mother and two chromosomes: X and Y were of paternal origin.

CONCLUSION: In summary the obtained results point to the notion that the foetal and placental abnormalities being the reason for stillbirth resulted from partial hydatidiform mole (4). The successful application of genetic markers in postnatal diagnosis of this condition in the cat confirms considerable usefulness of these techniques especially in cases where cytogenetic diagnosis is insufficient or impossible.